PATENT 4479C (CON)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Müller, et al.
Continuation Application of Serial No.:	09/156,697 filed September 18, 1998, first CPA filed December 17, 1999, second CPA filed June 29, 2000
Title:	METHOD FOR INCREASING THE LONG-TERM STABILITY OF EXHAUST SYSTEM CATALYSTS
Art Unit:	1754
Examiner:	T. Vanoy

December 20, 2001

Commissioner for Patents
United States Patent and Trademark Office
Washington, DC 20231

AMENDMENT UNDER 37 CFR § 1.116

Dear Sir:

This amendment is being made preliminary to examination of the above-referenced application. Please amend the above-referenced application as follows:

In the Title:

Delete the title; and insert a new title as follows:

--Method for Increasing the Long-term Stability of Exhaust System Catalysts--.

CERTIFICATE OF MAILING UNDER 37 C.F.R. 1.10

I hereby certify that this correspondence (along with any paper referenced as being attached or enclosed) is being deposited on the date shown below with the United States Postal Service in an envelope as "Express Mail Post Office to Addressee" Mailing Label Number EM507976902US addressed to Commissioner for Patents, United States Patent and Trademark Office, Washington, DC 20231.

Date: December 20, 2001

Phyllis Nova

In the Abstract:

Delete the Abstract; and insert a new Abstract as follows:

--Abstract of the Disclosure--

A method to increase the stability of the exhaust catalyst of an internal combustion engine. The exhaust gas is purified with respect to volatile phosphorus compounds, such as phosphorous oxides. The metal or metal compound can be metered into the exhaust stream for conversion of the volatile phosphorus compound into non-volatile solid compounds in the exhaust gas upstream of the catalyst. Useful metals or metal compounds based on such metals include: Group 1A metals such as Li, Na or K; Group 1B metals such as Cu or AG; Group 2A metals such as Mg or Ca; Group 3A metals such as Al, Y or the rare earth metals. Alternatively, the metal compound, which acts as an absorber, can be located between the engine and the exhaust catalyst supported on a metal or cordierite support in the form of a honeycomb.

In the Specification:

Amend the second paragraph on page 3 to the following:

"This is achieved according to the invention with the method presented in claim 1. Claims 2 to 4 give advantageous embodiments of the method according to the invention."

In the Claims:

Amend claims 1-4 as follows:

1. (Amended) A method of increasing the stability of catalysts for purifying exhaust gases of an internal combustion engine of the type

which combusts fuel and uses engine oil and which has an exhaust system, wherein the exhaust gas comprises volatile phosphorus compounds, comprising: metering a metal or metal compound for conversion of the volatile phosphorus compound into non-volatile solid compounds in the form of fine inert solid particles into the exhaust gas, separately from the engine oil and the fuel, upstream of the catalyst, wherein the non-volatile solid particles are so fine that they pass unstopped through the entire exhaust system.

2. (Amended) The method as claimed in claim 1, wherein the volatile phosphorus compounds in the exhaust gas are removed by reactions of the metal or metal compound which form solid metal-phosphorus compounds with the volatile phosphorus compounds.

3. (Amended) The method as claimed in claim 2, wherein calcium or a calcium compound is used as the metal or metal compound.

4. (Amended) The method as claimed in claims 1 or 2, wherein the metal or metal compound for conversion of the volatile phosphorus compound is selected from the group consisting of Li, Na, K, Cu, Ag, Mg, Ca, Zn, Al, Y and rare earth metals and metal compounds.

Cancel claims 5 and 6.

A full set of claims showing the amendments accompanies this amendment.

REMARKS

Consideration of the above referenced application, as amended, is respectfully requested.

35 USC § 121

In applicants' parent application, restriction had been required under 35 USC § 121 to Group I, claims 1-5 directed to an method for increasing the stability of internal combustion engine exhaust gas catalysts by removing phosphorus compounds out of the exhaust gas; and Group II, claim 6, directed to a device for increasing the stability of internal combustion engine exhaust gas catalysts by removing phosphorus compounds.

Applicants hereby elect to prosecute the invention of Group I, claims 1-5. Applicants have canceled claim 6 without prejudice to filing a divisional application.

Title

The Title has been amended to reflect the elected invention.

Abstract of the Disclosure

The Abstract of the Disclosure has been amended to comply with the Examiner's suggested amendments in applicants' parent application.

Specification and Claims

The specification and claims have been amended consistent with the amendments in the parent application.

Preliminary to examination, applicants have amended the above referenced application to more specifically present invention. Reconsideration of the application as amended is respectfully requested. If the Examiner believes that for any reason direct contact with applicants' attorney would advance the prosecution of this application to finality, the Examiner is invited to telephone the undersigned at the number given below.

Respectfully submitted,

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Tracked Claims Illustrating Amendments

1. (Amended) A method of increasing the ~~long-term~~ stability of ~~[components of an exhaust system, in particular,]~~ catalysts for purifying ~~the~~ exhaust gases of an internal combustion engines ~~of~~ the type which combusts fuel and uses engine oil and which has an exhaust system, wherein the exhaust gas ~~is purified with respect to~~ comprises volatile phosphorus compounds ~~before contact with the components or before entering the catalyst~~ comprising metering a metal or metal compound for conversion of the volatile phosphorus compound into non-volatile solid compounds in the form of fine inert solid particles into the exhaust gas, separately from the engine oil and the fuel, upstream of the catalyst, wherein the non-volatile solid particles are so fine that they pass unstopped through the entire exhaust.

2. (Amended) The method as claimed in claim 1, wherein the volatile phosphorus compounds in the exhaust gas are removed by reactions with ~~metals or metal compounds~~ the metal or metal compound which form solid metal-phosphorus compounds with the volatile phosphorus compounds.

3. (Amended) The method as claimed in claim ~~1~~2, wherein calcium or a calcium compound is used as the metal or metal compound.

4. (Amended) The method as claimed in claims ~~2~~ 1 or ~~3~~2, wherein the metal or metal compound for conversion ~~with~~ of the volatile phosphorus compound is ~~metered into the exhaust gas upstream of the catalyst~~ selected from the group consisting of Li, Na, K, Cu, Ag, Mg, Ca, Zn, Al, Y and rare earth metals and metal compounds.